Microprocessor electronics in space instrument making

Alferyev I.S., *stud.*, Mochalov A.V., *Prof.*, Fedyuk R.S., *post graduate stud.*, Danilenko V.V., *stud.*; Mironov K.K., *stud.*
Far Eastern Federal University

Volumes of information processed on board the spacecraft (SC) is constantly growing, the algorithms of the onboard systems - complicated. Therefore, a need for new solutions in the field of system architecture SC. Operating conditions are very complex spacecraft: overload when starting, temperature, radiation, and other negative factors of outer space , as well as the inability to repair a running companion , require onboard equipment reliability and survivability. Architecture used today onboard control systems and data do not satisfy in full all these requirements [1]. Need a new concept of architecture - board information and control systems of spacecraft, which provides high functionality and reliability of such systems.

Currently, some progress in the field of micromechanics, micro, nano-processor and information technologies make it possible to design and create a new type of information processing systems and management - intelligent. This type of system is especially important in mechatronics as design of mechanical systems and their control systems should be carried out as a single unit - integrated systems. It should be borne in mind that some problems can be solved easily and in physical samples in other "information" samples – micro - controllers, however combined information process, including realized in software. Modern mechatronics is considered as the science of building intelligent machines. It was preceded by extensive experience of interconnecting mechanical devices , radio -and optoelectronics, analog and digital computing facilities in the complex systems of various purposes. The components of these systems are separate units that are connected using different converters (DAC, ADC) and other interfacing devices. [2]

1. Kostkin M., Pozdnjakov P., Popovich A. *Electronics: Science, Technology, Business*, **4,** 86 (2008).
2. Pupkov K.A. Advances in micromechanics, micro, nano-processor and information technologies make it possible to design and create a new type of information processing systems and management - smart [electronic resource]. Access address: http://ihst.ru/ ~ akm/36t17.pdf.